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**Inter-IMS Network to Network Interface (NNI)
(3GPP TS 29.165 version 12.22.0 Release 12)**



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Contents

Intellectual Property Rights	2
Legal Notice	2
Modal verbs terminology.....	2
Foreword.....	7
1 Scope	8
2 References	8
3 Definitions, symbols and abbreviations	15
3.1 Definitions	15
3.2 Symbols.....	16
3.3 Abbreviations	17
4 Overview	18
5 Reference model for interconnection between IM CN subsystems	20
5.1 General	20
5.2 Functionalities performed by entities at the edge of the network	20
5.2.1 Interconnection Border Control Function (IBCF).....	20
5.2.2 Transition Gateway (TrGW).....	21
5.3 Identifying II-NNI traversal scenario	21
5.3.1 General.....	21
5.3.2 Mapping of the SIP URI parameter to II-NNI traversal scenario.....	22
6 Control plane interconnection	22
6.1 Definition of Inter-IMS Network to Network Interconnection.....	22
6.1.1 SIP methods and header fields.....	22
6.1.1.1 General	22
6.1.1.2 SIP methods	22
6.1.1.3 SIP header fields	23
6.1.1.3.0 General	23
6.1.1.3.1 Trust and no trust relationship	23
6.1.1.3.2 Derivation of applicable SIP header fields from TS 24.229 [5]	24
6.1.1.3.3 Applicability of SIP header fields on a roaming II-NNI.....	25
6.1.1.3.4 Applicability of SIP header fields on a non-roaming II-NNI	25
6.1.1.4 Notations of the codes.....	25
6.1.1.5 Modes of signalling.....	26
6.1.2 SDP protocol.....	26
6.1.2.1 General	26
6.1.3 Major capabilities	26
6.1.4 SIP message bodies.....	33
6.2 Control Plane Transport	36
6.2.1 General.....	36
6.3 SIP timers	36
7 User plane Interconnection.....	38
7.1 Media and Codec.....	38
7.2 User Plane Transport.....	38
8 Numbering, Naming and Addressing	39
8.1 Numbering, Naming and Addressing for SIP message	39
8.2 Numbering, Naming and Addressing for SDP	40
9 IP Version.....	40
10 Security.....	40
11 Charging	40
11.1 General	40

11.2	Inter-operator accounting	40
11.3	Transfer of IP multimedia service tariff information.....	41
12	Supplementary services associated with the IMS multimedia telephony communication service.....	42
12.1	General	42
12.2	Malicious Communication Identification (MCID).....	42
12.3	Originating Identification Presentation (OIP) and Originating Identification Restriction (OIR).....	42
12.4	Terminating Identification Presentation (TIP) and Terminating Identification Restriction (TIR)	43
12.5	Anonymous Communication Rejection (ACR).....	43
12.6	Communication DIVersion (CDIV).....	43
12.7	Communication Waiting (CW)	44
12.8	Communication HOLD (HOLD)	44
12.9	Message Waiting Indication (MWI).....	44
12.10	Communication Barring (CB).....	45
12.10.1	Incoming Communication Barring (ICB).....	45
12.10.2	Outgoing Communication Barring (OCB).....	45
12.11	Completion of Communications to Busy Subscriber (CCBS).....	45
12.12	Completion of Communications by No Reply (CCNR).....	46
12.13	Explicit Communication Transfer (ECT).....	46
12.13.1	Consultative and blind transfer	46
12.13.2	Assured transfer	47
12.14	Customized Alerting Tone (CAT).....	47
12.15	Customized Ringing Signal (CRS).....	47
12.16	Closed User Group (CUG).....	48
12.17	Personal Network Management (PNM)	48
12.18	Three-Party (3PTY).....	48
12.19	Conference (CONF).....	48
12.20	Flexible Alerting (FA).....	49
12.21	Announcements.....	49
12.21.1	General.....	49
12.21.2	Providing announcements during the establishment of a communication session.....	49
12.21.3	Providing announcements during an established communication session.....	49
12.21.4	Providing announcements when communication request is rejected.....	50
12.22	Advice of Charge (AOC).....	50
12.23	Completion of Communications on Not Logged-in (CCNL).....	50
12.24	Unstructured Supplementary Service Data (USSD).....	51
13	Interoperability of IMS Centralized Services (ICS) over II-NNI.....	51
13.1	General	51
13.2	IMS Centralized Services (ICS)	52
14	Interoperability of IMS Service Continuity over II-NNI	52
14.1	General	52
14.2	PS to CS Single Radio Voice Call Continuity (SRVCC) and Single Radio Video Call Continuity (vSRVCC).....	52
14.2.1	Basic PS to CS SRVCC	52
14.2.2	PS to CS SRVCC for calls in alerting phase.....	53
14.2.3	Using the ATCF based architecture.....	53
14.2.4	PS to CS SRVCC for originating calls in pre-alerting phase.....	53
14.2.5	PS to CS SRVCC with the MSC server assisted mid-call feature	54
14.3	Inter UE Transfer (IUT)	54
14.4	MSC server assisted mid-call feature	54
14.5	CS to PS Single Radio Voice Call Continuity (SRVCC).....	55
14.5.1	Basic CS to PS SRVCC.....	55
14.5.2	CS to PS SRVCC for calls in alerting phase.....	55
14.5.3	CS to PS SRVCC with the assisted mid-call feature	55
14.6	PS to CS dual radio voice call continuity (DRVCC).....	55
14.6.1	Basic PS to CS DRVCC	55
14.6.2	PS to CS DRVCC with the assisted mid-call feature.....	56
14.6.3	PS to CS DRVCC for calls in alerting phase.....	56
14.6.4	PS to CS DRVCC for originating calls in pre-alerting phase	56
14.7	CS to PS Dual Radio Voice Call Continuity (DRVCC).....	56
14.7.1	Basic CS to PS DRVCC	56

14.7.2	CS to PS DRVCC with the assisted mid-call feature.....	57
14.7.3	CS to PS DRVCC for calls in alerting phase	57
14.7.4	CS to PS DRVCC for originating calls in pre-alerting phase	57
14.8	PS to PS access transfer.....	57
15	Presence service	58
15.0	General	58
15.1	Subscription of presence information.....	58
15.2	Watcher subscribing to Presence List.....	58
15.3	Subscription to Watcher Information	59
15.4	Subscription to state changes in XML documents	59
15.5	Presence enhancements specified in Open Mobile Alliance (OMA) Release 1.1	59
15.5.1	General.....	59
15.5.2	OMA subscription of presence information.....	59
15.5.3	OMA watcher subscribing to Presence List.....	59
15.5.4	OMA subscription to Watcher Information	60
15.6	Presence enhancements specified in Open Mobile Alliance (OMA) Release 2.0	60
15.6.1	General.....	60
15.6.2	OMA subscription of presence information.....	60
15.6.3	OMA watcher subscribing to Presence List.....	60
15.6.4	OMA subscription to Watcher Information	61
15.6.5	Subscription to state changes in XML documents	61
15.6.6	Void	61
15.6.7	Void	61
16	Messaging service	61
16.1	General	61
16.2	Page-mode messaging	62
16.4	Session-mode messaging	62
16.5	Session-mode messaging conferences	62
17	Optimal Media Routing	62
17.1	General	62
17.2	OMR related SDP attributes	63
17.3	IP realm names	63
18	Inter-UE transfer (IUT)	63
18.1	General	63
18.2	IUT without establishment of a collaborative session	63
18.3	IUT using a collaborative session.....	63
18.3.1	Collaborative session of participants of the same subscription.....	63
18.3.2	Establishment of a collaborative session during session setup	64
18.3.3	Assignment and transfer of control of a collaborative session.....	64
18.3.4	Collaborative session of participants of different subscriptions	65
18.4	Session replication / media replication.....	65
18.4.1	Pull mode	65
18.4.2	Push mode.....	65
19	Roaming Architecture for Voice over IMS with Local Breakout	66
20	Delivery of Media Resource Broker address information.....	66
21	Overload control.....	66
21.1	General	66
21.2	Feedback based mechanism	67
21.3	The load filter mechanism	67
22	Delivery of original destination identity	67
23	Telepresence using IMS	67
24	Barring of premium rate numbers	68
25	P-CSCF restoration	68
25.1	General	68
25.2	PCRF based P-CSCF restoration.....	68

25.3	HSS based P-CSCF restoration	68
Annex A (informative):	Summary of SIP header fields	69
Annex B (informative):	Dynamic view of SIP header fields within SIP messages	74
B.1	Scope	74
B.2	Methodology	74
B.3	ACK method	76
B.4	BYE method.....	77
B.5	CANCEL method.....	80
B.6	INFO method.....	81
B.7	INVITE method.....	86
B.8	MESSAGE method	94
B.9	NOTIFY method	100
B.10	OPTIONS method	105
B.11	PRACK method.....	111
B.12	PUBLISH method	114
B.13	REFER method	120
B.14	REGISTER method	126
B.15	SUBSCRIBE method	130
B.16	UPDATE method	137
Annex C (informative):	The list of option items for II-NNI	141
C.1	Scope	141
C.2	Format of option item table	141
C.3	Option item table	142
C.3.0	Supported II-NNI traversal scenarios	142
C.3.1	Option item table common to roaming, non-roaming II-NNI and loopback traversal scenario	142
C.3.2	Option item table specific to roaming II-NNI	150
C.3.3	Option item table specific to non-roaming II-NNI and loopback traversal scenario	153
Annex D: Change history		156
History		160

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1 Scope

The objective of this document is to address the Inter-IMS Network to Network Interface (II-NNI) consisting of Ici and Izi reference points between IMS networks in order to support end-to-end service interoperability.

The present document will address the issues related to control plane signalling (3GPP usage of SIP and SDP protocols, required SIP header fields) as well as other interconnecting aspects like security, numbering/naming/addressing and user plane issues as transport protocol, media and codecs actually covered in a widespread set of 3GPP specifications. A profiling of the Inter-IMS Network to Network Interface (II-NNI) is also provided.

Charging aspects will be addressed as far as SIP signalling is concerned.

SIP signalling traversing the NNI between a CSCF and an AS or MRB, e.g. for media control or Voice Interworking with Enterprise IP-PBX, and SIP signalling traversing the NNI on the Mr interface between the CSCF and the MRFC, or on the Mr' interface between the AS and MRFC, or on the Rc interface between AS and MRB is not considered in the present release of this specification.

SIP signalling traversing the NNI between an ISC gateway and an AS in an enterprise network, e.g. for media control and voice interworking with enterprise IP-PBX, on the ISC interface between the ISC gateway and the enterprise network is not considered in the present release of this specification.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

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- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document in the same Release as the present document.

- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] IETF RFC 791: "Internet Protocol".
- [3] 3GPP TS 23.002: "Network architecture".
- [4] 3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2".
- [5] 3GPP TS 24.229: "Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".
- [6] 3GPP TR 24.930: "Signalling flows for the session setup in the IP Multimedia core network Subsystem (IMS) based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".
- [7] IETF RFC 2460: "Internet Protocol, Version 6 (IPv6) Specification".
- [8] 3GPP TS 29.162: "Interworking between the IM CN subsystem and IP networks".
- [9] 3GPP TS 22.228: "Service requirements for the IP multimedia core network subsystem".
- [10] 3GPP TS 33.210: "3G security; Network Domain Security (NDS); IP network layer security".
- [11] 3GPP TS 26.114: "IP Multimedia Subsystem (IMS); Multimedia Telephony; Media handling and interaction".
- [12] ETSI TS 181 005 V1.1.1: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Services and Capabilities Requirements".

- [13] IETF RFC 3261: "SIP: Session Initiation Protocol".
- [14] IETF RFC 3966: "The tel URI for Telephone Numbers".
- [15] IETF RFC 3860: "Common Profile for Instant Messaging (CPIM)".
- [16] IETF RFC 3859: "Common Profile for Presence (CPP)".
- [17] IETF RFC 4975: "The Message Session Relay Protocol (MSRP)".
- [18] IETF RFC 3262: "Reliability of provisional responses in Session Initiation Protocol (SIP)".
- [19] IETF RFC 3428: "Session Initiation Protocol (SIP) Extension for Instant Messaging".
- [20] IETF RFC 6665: "SIP-Specific Event Notification".

NOTE: In earlier releases of this document the predecessor IETF RFC 3265 is used.

- [21] IETF RFC 3903: "An Event State Publication Extension to the Session Initiation Protocol (SIP)".
- [22] IETF RFC 3515: "The Session Initiation Protocol (SIP) REFER method".
- [23] IETF RFC 3311: "The Session Initiation Protocol (SIP) UPDATE method".
- [24] IETF RFC 7315: "Private Header (P-Header) Extensions to the Session Initiation Protocol (SIP) for the 3GPP".
- [24A] IETF RFC 7976: "Updates to Private Header (P-Header) Extension Usage in Session Initiation Protocol (SIP) Requests and Responses".
- [24B] IETF RFC 7913: "P-Access-Network-Info ABNF Update".
- [25] IETF RFC 7044: "An Extension to the Session Initiation Protocol (SIP) for Request History Information".
- [26] IETF RFC 6050: "A Session Initiation Protocol (SIP) Extension for the Identification of Services".
- [27] IETF RFC 4168: "The Stream Control Transmission Protocol (SCTP) as a Transport for the Session Initiation Protocol (SIP)".
- [28] Void.
- [29] 3GPP TS 32.260: "Telecommunication management; Charging management; IP Multimedia Subsystem (IMS) charging".
- [30] 3GPP TS 22.173: "IP Multimedia Core Network Subsystem (IMS); Multimedia Telephony Service and supplementary services; Stage 1".
- [31] 3GPP TS 24.173: "IMS multimedia telephony communication service and supplementary services; Stage 3".
- [32] 3GPP TS 24.607: "Originating Identification Presentation (OIP) and Originating Identification Restriction (OIR) using IP Multimedia (IM); Core Network (CN) subsystem".
- [33] 3GPP TS 24.616: "Malicious Communication Identification (MCID) using IP Multimedia (IM) Core Network (CN) subsystem".
- [34] IETF RFC 3323: "A Privacy Mechanism for the Session Initiation Protocol (SIP)".
- [35] 3GPP TS 23.003: "Numbering, addressing and identification".
- [36] 3GPP TS 24.610: "Communication HOLD (HOLD) using IP Multimedia (IM) Core Network (CN) subsystem".
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- [38] 3GPP TS 24.628: "Common Basic Communication procedures using IP Multimedia (IM) Core Network (CN) subsystem".
- [39] IETF RFC 6086: "Session Initiation Protocol (SIP) INFO Method and Package Framework".
- [40] IETF RFC 3312: "Integration of resource management and Session Initiation Protocol (SIP)".
- [41] IETF RFC 4032: "Update to the Session Initiation Protocol (SIP) Preconditions Framework".
- [42] IETF RFC 3313: "Private Session Initiation Protocol (SIP) Extensions for Media Authorization".
- [43] IETF RFC 3327: "Session Initiation Protocol Extension Header Field for Registering Non-Adjacent Contacts".
- [44] IETF RFC 3325: "Private Extensions to the Session Initiation Protocol (SIP) for Network Asserted Identity within Trusted Networks".
- [45] IETF RFC 3608: "Session Initiation Protocol (SIP) Extension Header Field for Service Route Discovery During Registration".
- [46] IETF RFC 3486: "Compressing the Session Initiation Protocol (SIP)".
- [47] IETF RFC 3329: "Security Mechanism Agreement for the Session Initiation Protocol (SIP)".
- [48] IETF RFC 3326: "The Reason Header Field for the Session Initiation Protocol (SIP)".
- [49] IETF RFC 6432: "Carrying Q.850 Codes in Reason Header Fields in SIP (Session Initiation Protocol) Responses".
- [50] IETF RFC 3581: "An Extension to the Session Initiation Protocol (SIP) for Symmetric Response Routing".
- [51] IETF RFC 3841: "Caller Preferences for the Session Initiation Protocol (SIP)".
- [52] IETF RFC 4028: "Session Timers in the Session Initiation Protocol (SIP)".
- [53] IETF RFC 3892: "The Session Initiation Protocol (SIP) Referred-By Mechanism".
- [54] IETF RFC 3891: "The Session Initiation Protocol (SIP) 'Replaces' Header".
- [55] IETF RFC 3911: "The Session Initiation Protocol (SIP) 'Join' Header".
- [56] IETF RFC 3840: "Indicating User Agent Capabilities in the Session Initiation Protocol (SIP)".
- [57] IETF RFC 5079: "Rejecting Anonymous Requests in the Session Initiation Protocol (SIP)".
- [58] IETF RFC 4458: "Session Initiation Protocol (SIP) URIs for Applications such as Voicemail and Interactive Voice Response (IVR)".
- [59] IETF RFC 4320: "Actions Addressing Identified Issues with the Session Initiation Protocol's (SIP) Non-INVITE Transaction".
- [60] IETF RFC 4457: "The Session Initiation Protocol (SIP) P-User-Database Private-Header (P-header)".
- [61] IETF RFC 5031: "A Uniform Resource Name (URN) for Emergency and Other Well-Known Services".
- [62] IETF RFC 5627: "Obtaining and Using Globally Routable User Agent (UA) URIs (GRUU) in the Session Initiation Protocol (SIP)".
- [63] Void.
- [64] IETF RFC 5002: "The Session Initiation Protocol (SIP) P-Profile-Key Private Header (P-Header)".
- [65] IETF RFC 5626: "Managing Client-Initiated Connections in the Session Initiation Protocol (SIP)".

- [66] IETF RFC 5768: "Indicating Support for Interactive Connectivity Establishment (ICE) in the Session Initiation Protocol (SIP)".
- [67] IETF RFC 5365: "Multiple-Recipient MESSAGE Requests in the Session Initiation Protocol (SIP)".
- [68] IETF RFC 6442: "Location Conveyance for the Session Initiation Protocol".
- [69] IETF RFC 5368: "Referring to Multiple Resources in the Session Initiation Protocol (SIP)".
- [70] IETF RFC 5366: "Conference Establishment Using Request-Contained Lists in the Session Initiation Protocol (SIP)".
- [71] IETF RFC 5367: "Subscriptions to Request-Contained Resource Lists in the Session Initiation Protocol (SIP)".
- [72] IETF RFC 4967: "Dial String Parameter for the Session Initiation Protocol Uniform Resource Identifier".
- [73] IETF RFC 4964: "The P-Answer-State Header Extension to the Session Initiation Protocol for the Open Mobile Alliance Push to Talk over Cellular".
- [74] IETF RFC 5009: "Private Header (P-Header) Extension to the Session Initiation Protocol (SIP) for Authorization of Early Media".
- [75] IETF RFC 4694: "Number Portability Parameters for the 'tel' URI".
- [76] Void.
- [77] IETF RFC 4411: "Extending the Session Initiation Protocol (SIP) Reason Header for Preemption Events".
- [78] IETF RFC 4412: "Communications Resource Priority for the Session Initiation Protocol (SIP)".
- [79] IETF RFC 5393: "Addressing an Amplification Vulnerability in Session Initiation Protocol (SIP) Forking Proxies".
- [80] IETF RFC 5049: "Applying Signaling Compression (SigComp) to the Session Initiation Protocol (SIP)".
- [81] IETF RFC 5688: "A Session Initiation Protocol (SIP) Media Feature Tag for MIME Application Sub-Types".
- [82] IETF RFC 5360: "A Framework for Consent-Based Communications in the Session Initiation Protocol (SIP)".
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